

## CLAIMS

1. A device for equalizing and amplifying an input signal, comprising:  
a first amplifier stage for receiving the input signal having an input power level and for  
5 amplifying the input signal;  
an equalizer coupled to the first amplifier stage for equalizing the amplified input signal;  
and  
a second amplifier stage coupled to the equalizer for further amplifying the input signal to  
provide an amplified output signal,  
10 wherein the positioning of the equalizer between the first and second amplifier stages  
maintains a low level of noise and improved distortion levels.
2. The device of claim 1, wherein a comparison between the noise level of the device are  
improved over the noise level of a device having an equalizer positioned prior to amplifier stages.  
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3. The device of claim 1, wherein a comparison between the distortion levels of the device  
are improved over distortion levels of a device having an equalizer positioned subsequent to  
amplifier stages.
- 20 4. The device of claim 1, wherein the first and second amplifier stages and the equalizer are  
packaged in an integrated circuit, or wherein the first amplifier stage, the second amplifier stage,  
and the equalizer are packaged as integrated circuits.
- 25 5. The device of claim 1, wherein the equalizer is a single-ended device
6. The device of claim 1, wherein the equalizer is a differential device.
7. The device of claim 1, wherein the device is located within a transmitting device
- 30 8. The device of claim 1, wherein the device is located within a receiving device.
9. The device of claim 1, wherein the equalizer has a set of fixed value components.
- 35 10. The device of claim 1, wherein the equalizer has a set of tunable value components.

11. A transmitting device for transmitting a signal having a particular frequency response, the transmitting device comprising:

an input for receiving an input signal having an input power level;

a device for amplifying and equalizing the input signal, the device comprising:

5 a first amplifier stage for receiving the input signal and for amplifying the input signal;

an equalizer coupled to the first amplifier stage for equalizing the amplified input signal; and

10 a second amplifier stage coupled to the equalizer for further amplifying the input signal to provide an amplified output signal,

whereby the positioning of the equalizer between the first and second amplifier stages maintains a low level of noise and improved distortion levels.

12. The device of claim 11, wherein a comparison between the noise level of the device are improved over the noise level of a device having an equalizer positioned prior to amplifier stages.

13. The device of claim 11, wherein a comparison between the distortion levels of the device are improved over distortion levels of a device having an equalizer positioned subsequent to amplifier stages.

14. The transmitting device of claim 11, wherein the equalizer provides the output signal having a frequency response that is one of tilted up, tilted down, cable shaped, linear shaped, a combination of cable and linear shaped, a frown, and a smile.

15. A receiving device for receiving an input signal and providing an output signal having a particular frequency response, the receiving device comprising:

an input for receiving an input signal having an input power level;

a device for amplifying and equalizing the input signal, the device comprising:

30 a first amplifier stage for receiving the input signal and for amplifying the input signal;

an equalizer coupled to the first amplifier stage for equalizing the amplified input signal; and

a second amplifier stage coupled to the equalizer for further amplifying the input signal to provide an amplified output signal,

35 whereby the positioning of the equalizer between the first and second amplifier stages maintains a low level of noise and improved distortion levels.

16. The device of claim 15, wherein a comparison between the noise level of the device are improved over the noise level of a device having an equalizer positioned prior to amplifier stages.
- 5 17. The device of claim 15, wherein a comparison between the distortion levels of the device are improved over distortion levels of a device having an equalizer positioned subsequent to amplifier stages.